Madigan Army Medical Center
Referral Guidelines

Adrenal Nodules

Definition and Background

- The adrenal "incidentaloma" is an unsuspected and asymptomatic mass, usually detected on computed tomography (CT) obtained for other purposes. Incidentally discovered adrenal masses can be of varying sizes, but in general, the larger the lesion the more likely it is to be symptomatic. The majority of incidentalomas are benign and most often represent adenomas. The prevalence of adenomas in the general population, as summarized by one group of researchers, ranges from 1% to 2%, although autopsy studies have shown rates as high as 6.6% to 8.7% depending on the age distribution of the patient sample. The risk of primary adrenal cortical carcinoma in this population is quite small, on the order of 0.06%; however, among patients with adrenal masses the risk is reported to be as high as 4.7%. Other adrenal malignancies include angiosarcomas, lymphomas, and pheochromocytomas. These are diminishingly rare in the general population.
- Metastatic disease without a known history of primary malignancy is also unusual. In a recent study of 1,049 incidental adrenal masses in patients with no known history of cancer, none were malignant lesions. The majority of lesions were adrenal adenomas, myelolipomas and cysts.
- The situation is different for patients with a known history of malignancy. In this setting, the rate of metastatic disease has been reported to be as high as 25% to 72% depending on the size and type of the primary lesion. For instance, bronchogenic and renal carcinomas and melanoma have a relatively higher rate of adrenal metastases than other epithelial malignancies. Despite this, a report found that even in patients with non-small cell lung cancer, adenomas were more common than metastases.
- The guidelines suggested here apply to masses detected incidentally during CT, ultrasound, or magnetic resonance imaging evaluation. The patient is free of symptoms, although the mass may later prove to be functional (i.e., Cushing's or Conn's adenoma or pheochromocytoma).

Evaluation

- All patients with an adrenal incidentaloma should undergo evaluation biochemically, radiographically, and clinically for signs and symptoms of hypercortisolism, aldosteronism, pheochromocytoma, or a malignant tumor.
- The following tests should be ordered for all patients with an Adrenal Nodule

o Dedicated CT Adrenal wo/w contrast

o A screening test for Cushing syndrome (1 mg overnight dexamethasone suppression test, a 24 hr urine free cortisol, or a late night salivary cortisol)

    - 1 mg overnight dexamethasone suppression test. This is to screen for sub-clinical Cushings. Dexamethasone 1.0 mg is taken at 2300 the night

before the blood test. Further evaluation for sub-clinical Cushings syndrome is made if the fasting serum cortisol level the following morning is more than 3.0 mg/dL.

- 24 hr urine free cortisol. This is also to screen for sub-clinical Cushings syndrome.
- Late night salivary cortisol. The patient takes home a collection kit from the laboratory, collects the specimen at 2300-2400, refrigerates this and brings it to the lab the following morning.

o 24 hr urine metanephrines and catecholamines tests. These studies require special dietary and medication considerations. Values greater than 2 x the upper limit of normal are suggestive of a pheochromocytoma.

o Screen for primary hyperaldosteronism by obtaining a random plasma aldosterone concentration (PAC) and measuring plasma renin activity (PRA). PAC/PRA > 20 AND PAC > 15 ng/dL is suggestive of Primary hyperaldosteronism

- MRI is useful when the CT scan is equivocal
- Consider CT oncology and PET scan in any patient with prior malignancy. Common metastasis includes lung, breast, GI, and prostate cancers.
- Adrenal biopsy should be reserved for cases where the noninvasive techniques are equivocal and to confirm the presence of metastases and biochemical tests are negative.

Indication for Referral

- All patients with an adrenal nodule >4cm should be referred to General surgery or Urology
- Any patient with an adrenal nodule with concerning features (irregular margins, intramural necrosis, not an adenoma or myeolipoma by CT/MRI criteria) should be referred to surgery
- Patients with functioning masses should be referred to both surgery and endocrinology
- If unclear if nodule is functioning following screening tests, refer to endocrinology, surgery or urology.

Management

- Patients with adrenal incidentalomas who do not fulfill the criteria for surgical resection need to have radiographic reevaluation at 3 to 6 months and then annually for 1 to 2 years. For all adrenal tumors, hormonal evaluation should be performed at the time of diagnosis and then annually for 5 years.
- Any adrenal mass with concerning radiographic characteristics and most lesions ≥4 cm should be resected because of increased risk of adrenal cancer
- All Pheochromocytomas should be resected

- In patients with primary aldosteronism and a unilateral source of aldosterone excess, laparoscopic total adrenalectomy is the treatment of choice
- Adrenal metastasectomy is rarely indicated but should be considered in the case of an isolated adrenal metastatic lesion

Criteria for return to Primary Care from Specialty Referral

- Primary adrenal malignancy excluded based on evaluation of patient by surgery
- Exclusion of a functional adrenal mass
- Establishment of a plan of care for the patient with a functional adrenal mass that has been evaluated and counseled by both endocrinology and surgery

Last Review for this Guideline: **January 2011**
Referral Guidelines require review every three years.

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